

ISSUE: WATER QUALITY

BACKGROUND- Before the arrival of Europeans, the few pollutants that entered the Bay Delta Estuary came from natural sources such as the weathering of rocks, from oil seeps, and from the settlements of Native Americans along the shoreline. The effects of these pollutants were probably small and localized. The first major human-caused pollutant effect in the Estuary occurred during the gold mining period between 1850 and 1884 when an estimated 3,500 tons of highly toxic mercury were used to extract gold. Along with millions of cubic yards of sediments washed down the streambeds by the high-pressure hydraulic mining hoses, some of this mercury reached the Estuary. By the turn of the century, untreated industrial and sewage wastes reduced water quality in many portions of the Estuary. By the end of the Second World War, with industry and agriculture thriving and more people moving into the region, the estuary was receiving large and mostly uncontrolled amounts of sewage, industrial, urban and agricultural wastes. By the 1950s, parts of the Estuary were in very poor condition. Algae growth, fed by the nutrients in wastewater, led to reports of "rotten egg" odors along the shoreline. Throughout the Estuary, studies indicated that pollutants were harming water quality and biological resources.

In 1884, hydraulic mining was banned. However, efforts to control sewage effects did not begin in earnest until the early 1950s when some publicly owned treatment plants began primary treatment of municipal wastewater. Since 1960, \$3 billion have been spent on wastewater plant upgrades and sewage outfall consolidation and relocation. Implementation of the State and Federal clean water laws led to rapid improvements in the quality of estuary waters during the 1970s. Between 1975 and 1985, "pretreatment" programs (reducing pollutants before they reach the municipal treatment plant) had reduced trace elements (such as copper and lead) being discharged from the plants by 37 to 92 percent.

In addition to the pollutants entering the system, the presence of both organic carbon and salts in the waters of the estuary are of concern. These salts, entering the estuary through the Bay and ocean, decreases the utility of Delta waters for most purposes. The level of organic carbon in the water (thought mainly to result from the process of plant decay on many of the Deltas peat soil islands) is of concern because of the way organic carbon reacts with other chemicals in the process of treating drinking water. "By-products" are created in this process which in turn must be treated by water providers in order to achieve safe drinking water.

STATUS- The quality of water in the estuary is vital to the economy of California. The Delta is a source of drinking water for millions of Californians, and is critical to the state's agricultural sector. Yet, despite great progress, water quality issues remain of concern in the estuary.

Every day, thousands of pounds of pollutants continue to enter the estuary. They come from many sources including sewage treatment plants, industrial facilities, forests, farm fields, mines, back yards and urban streets. They find their way to even the estuary's most remote areas where they interact with water, sediment, plants and animals. The task is to lower toxic pollutants until they no longer compromise the estuary's water quality and living resources depending upon it. Levels of salt and organic carbon in the Delta waters need to be controlled as well to protect existing human and agricultural use of those waters.